



Emergency Medical Service

The city of Akron, Ohio now has an operational telemetry-aided Emergency Medical System (EMS) which eventually will include all of Summit and Portage counties in northeastern Ohio. Lewis Research Center helped design the complex EMS communications system, including the telemetry link between ambulances and hospitals for advanced life support (paramedic) services.

Extensively used in space operations, telemetry is the process wherein instrument-acquired data is translated into radio signals and sent to a receiving station where the signals are decoded and recorded. In emergency medical use, it allows transmission of physiological data—an electrocardiogram, for instance—from an ambulance to a hospital emergency room, where a physician reads the telemetered information and prescribes emergency procedures to ambulance attendants caring for the patient.

In Akron—and throughout the U.S.—there are only eight radio frequencies available for transmission of EMS advanced life support data, which creates the possibility of signal interference that might disrupt relay of an emergency patient's vital signs. Thus, one

of Lewis Research Center's major tasks was development of a coordinated system in which each EMS unit and medical facility is routed to a frequency that can best be utilized at the moment without causing mutual interference with another station on the same frequency. The Lewis-designed system also includes provisions for central recording of all radio and telephone transmissions and defines strategic placement of antennas to eliminate radio "dead spots."

Another Lewis assignment was design of an electronically controlled and illuminated status board for the Akron Fire Department Communications Center (left), which serves as the regional communications control center for the eventual two-county system. The status board is essential to monitoring availability of all fire equipment, EMS vehicles and private ambulances; it also indicates the status of hospital emergency rooms in the area. Shown in closeup below, the status board is continuously posted on three electronic panels by fire department personnel. Lewis Research Center's Akron effort is a continuation of earlier, similar assistance provided other Ohio communities.

